

After-sales Service Instructions

Repair

42

VDT-W-420/100 En
Suppl. 1
Ed. 2

Mechanical governors

O 420 081 . . - RW . . MW . .
with combined atmospheric and manifold-pressure compensator (ALDA),
or altitude pressure compensator (ADA)

Contents

Page

3	1. Introduction
3	2. Tools
3	3. Dismantle the governor
6	4. Reassemble the governor
10	5. Tightening torques
10	6. Auxiliary tool

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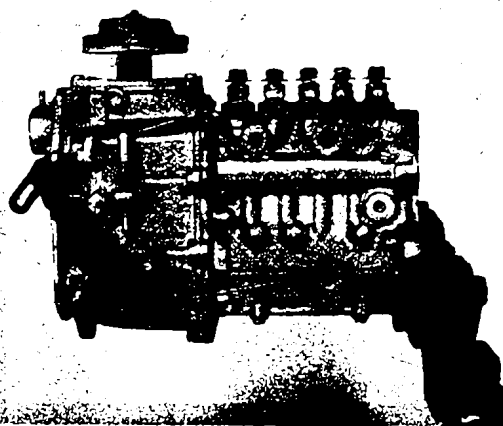
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(11. 78)

1. Introduction

1.1 Design and operation

See publication VDT-1-403/2 En.
One must be familiar with this publication before repairs can be carried out correctly.
The operation of the control linkage for both ADA and ALDA is identical.

1.2 The position numbers occurring in the text, refer to the sectional drawing on Page 12 (fold-out).



3. Dismantling the governor

Mount the fuel-injection pump together with the governor on the test bench, using the clamping support KDEP 2919 and the appropriate clamping device.

Remove the cover (80) and the pneumatic shutoff device together with its gasket. Collect any fuel which escapes.

Unscrew the governor fastening screws (75) and the adjusting shaft (48).

2. Tools

Designation	Part No.	Application
Clamping support	KDEP 2919	For clamping the fuel-injection pump and the governor
Clamping fixtures	KDEP 1067	For pumps with cradle mounting
Support clamp	KDEP 2963	For pumps with flange mounting
Flange	EFEP 157/6 1 685 720 018	PES with 3-hole flange
Flange	EFEP 157/4 1 685 720 017	PES with 4-hole flange
Ring	EFEP 29/0/3 1 680 202 005	Pilot dia. 68 mm
Pin wrench	KDEP 1062	For lock nut (Pos. 63)
Socket wrench	KDEP 1063	For stop (Pos. 70) and for locking
Pin wrench	KDEP 1064	For spring retainer (30) and for locking
Setting device	KDEP 1061	For sliding-sleeve (72) calibration
Dial indicator	EFAW 7 1 687 233 011	⁶ For setting device, effective measuring range 10 mm, graduations 1/100 mm
Measuring tool	KDEP 1070	For measuring the pin-projection dimension
Holding device	KDEP 1074	For compressing the spring (132)
Dial indicator	1 687 233 012	For measuring pin-projection dimension
Locking paste (Loctite)	Type CVV Commercially available	



Pull the governor housing back somewhat.

Disconnect the holding spring from the stud in the fulcrum lever (6).

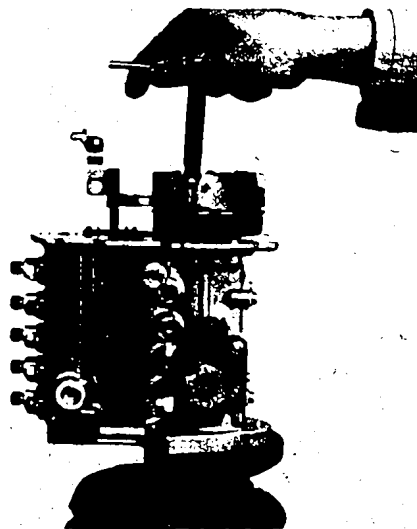
Put the fulcrum-lever stud out of the control rod.

Remove the governor.

Unscrew the lock nut (63) using the pin wrench KDEP-1062.

Remove the flyweight carrier (64) together with the casing (58).

Remove the support disc (57) and the support piece (part of the injection pump) from the camshaft.



Note:

Take care of the shims (141) and (133). If one of these shims is lost, this will result in the start-of-adjustment of the aneroid box being changed. The compression spring cannot be re-measured and calibrated.

Pull off the shims (141) and (133), and the compression spring (132) from the stud.

Remove the stop cover (52) and the gasket.

Release the tension on the extension spring (49 - governor spring) by unscrewing adjusting screw (28).

Move the tensioning lever (26) up against the retaining bracket (15), if necessary lift up the sliding sleeve.

Unhook the extension spring from the tensioning lever.

Pull the adjusting shaft (48) out of the housing, while at the same time unhooking the extension spring.

Remove the adjusting screw (28). Using the socket wrench, unscrew the stop (70).

Dismantle the flyweight assembly:

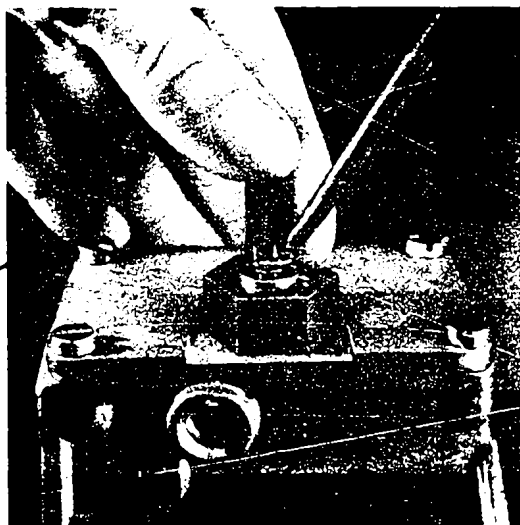
Fit a coupling half to the pump. Clamp the pump vertically in a vise using the coupling half.

Temporarily fit the flyweight assembly to the camshaft.

Remove the hexagon screws (68) and the holding bracket (67). Lift off the flyweights (65) together with the pivot pin (66) and the shims (84, 69).

Remove the lock nut (63).

Remove the flyweight carrier (64), the casing (58), and the driver disc (61) from the camshaft.



Using protective jaws, clamp the governor in a vise.

Loosen the union nut (52/2) on the aneroid box (147).

The hexagon nut (159) must NOT be loosened.

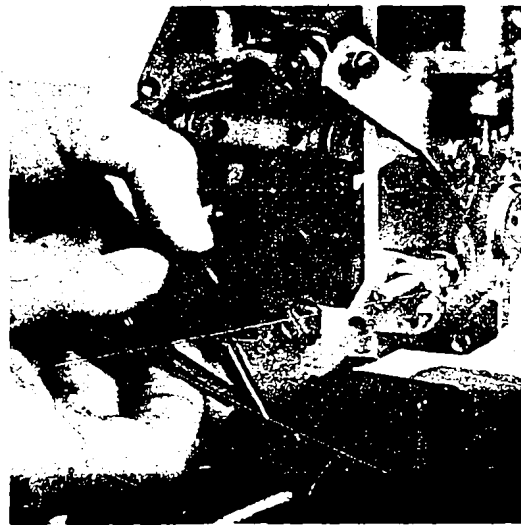
Pull the aneroid box (147) upwards and away from the stud of the governor link (120).

Remove the shims (148).

Push the holding device KDEP 1074 onto the stud.

During the following working step, lightly press against the locking washer with a finger in order to prevent it springing off.

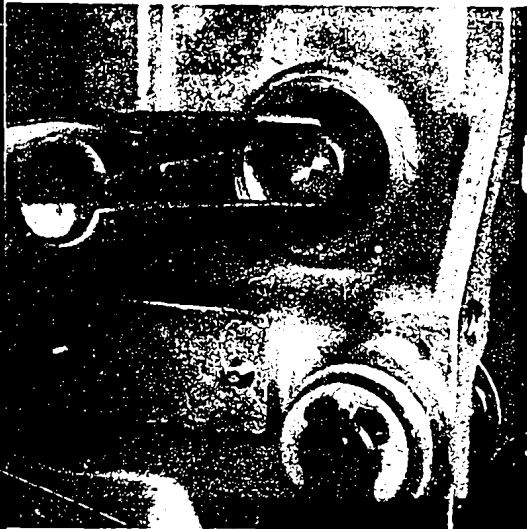
Lightly press on the holding device from above. Press out the locking washer with a screwdriver.



Using the pin wrench KDEP 1064, remove the spring retainer (30).

Push the tensioning lever as far as it will go in the direction of the governor housing.

Remove the sliding sleeve (72), the needle-roller bearing (73), and the driver disc (74).



Heat the screw plug (36) lightly (approx. 120°C), taking care not to damage the aluminum housing, and screw it out. Pull out the bearing bolt (34) together with the retainer (35) (Fig. 6).

Remove the tensioning lever and the shim (33).

Push out the leaf spring (32).

Remove the hexagon nut (43) together with the spring washer (47).

Pull the full-load stop (46) into the housing and then remove it.



Remove the lock washers (25), the spacer (24), and the plain washers (23).

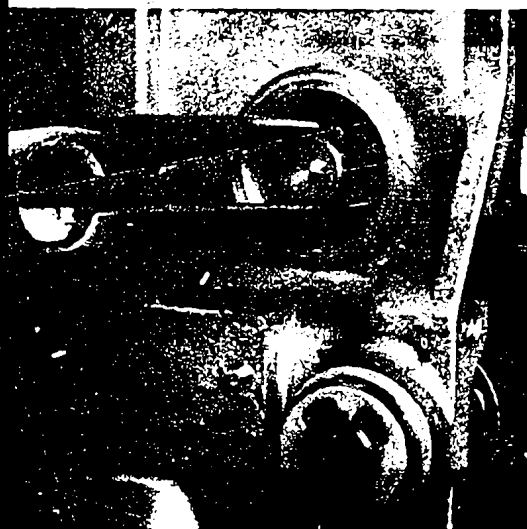
During the next working step be sure that the clamping rings (14) and the shim (9) are not lost or damaged.

Pull the control lever (8) out of the housing.

Pull the clamping rings (14) and the driver (13) off of the control lever (8) one after the other.

Remove both screw plugs (7). Remove the swivel lever (2) together with the fulcrum lever (6) and the linkage lever (39) from the housing.

Turn the bar on the swivel lever and pull off the fulcrum lever.

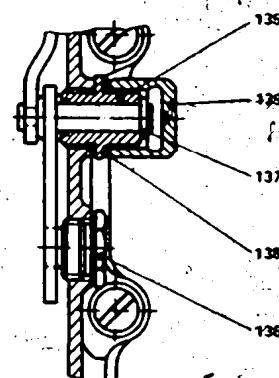


Remove the control lever (8):

Release the hexagon nut (21) and screw out the adjusting screw (81) (full-load stop).

Remove the hexagon nut (43) together with the spring washer (53) and the plain washer (41).

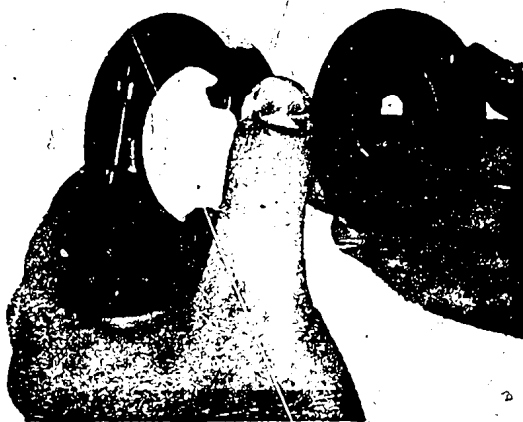
Remove the clamp screw (40) from the control lever (8), if necessary loosen the screw by means of light hammer blows.



Remove the governor link (120)

Remove the cap nut (139) and the flat seal ring (138). Push the locking washer (134) off of the guide pin, and pull the governor link together with the guide pin out of the tube fitting (135). Screw out the tube fitting (135).

Remove the screw plug (136).



9

3.1 Checking the individual parts for wear

Clean all the parts.

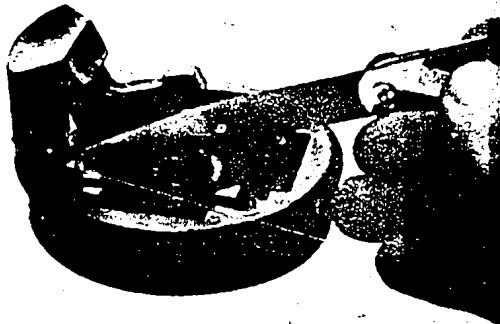
Replace any parts that have become worn or damaged.

As a basic principle, NEW gaskets, NEW seal rings (10), and NEW rubber buffers (60) must be fitted after any repair work has been carried out.

4. Reassemble the governor

4.1 Reassemble the flyweight assembly

Lay the driver disc (61) on the driver (59). Press the lightly oiled rubber buffer (60) in by hand. Install this sub-assembly in the flyweight carrier (64).



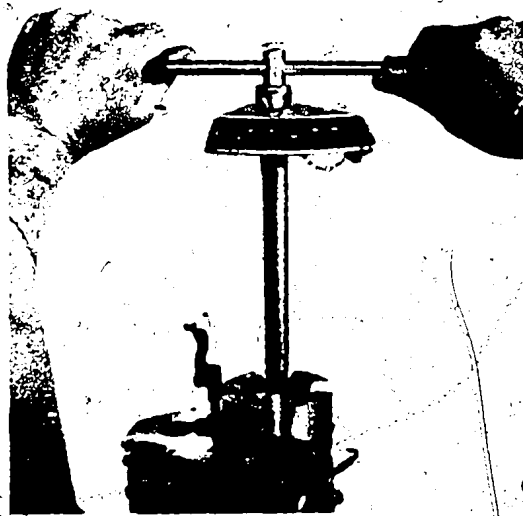
10

- ✓ Lay the lock nut (63) on the driver. Place the flyweights (65) in the flyweight carrier (64), together with pivot pin (66), and shims (84) on both sides.

Using a feeler gauge, measure the axial clearance of the flyweights. Set the clearance to 0.1 ... 0.2 mm using shims (69).

The shims are to be fitted on the opposite side to the flyweight arm.

With the aid of clamping bracket (67) and NEW hexagon screws, temporarily fit the flyweights (68).



11

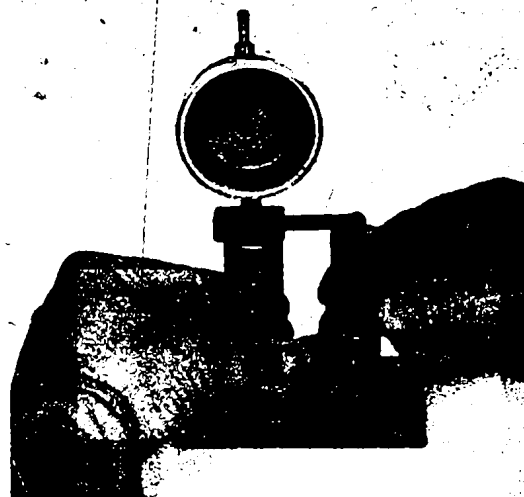
Clamp the injection pump vertically.

Slide the pre-assembled flyweight assembly onto the camshaft. Tighten the hexagon screws (68) with a torque of 10 ... 12 Nm (1.0 ... 1.2 kgf.m).

Remove the flyweight assembly.

Slide the support piece (77) (hole dia. 25 mm - part of the injection pump), the support disc (57) (hole dia. 20 mm), the casing (58), and the pre-assembled flyweight assembly onto the camshaft.

Tighten the lock nut (63) using pin wrench KDEP 1062. Tightening torque 100 ... 110 Nm (10.0 ... 11.0 kgf.m).



12

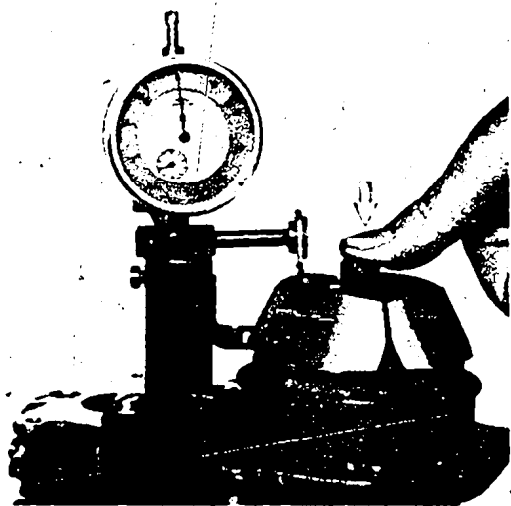
Sliding-sleeve calibration:

Calibrate the setting device KDEP 1061 against a standard gauge measure.

Pre-tension the dial indicator to a reading of 5 mm and set it to "0". Dial-indicator graduations: 1/100 mm.

Using grease, stick the support disc (92), the needle-roller bearing (73), and the driver disc (74) onto the sliding sleeve (72).

Place the sliding sleeve onto the camshaft and press it down on the shaft.



13

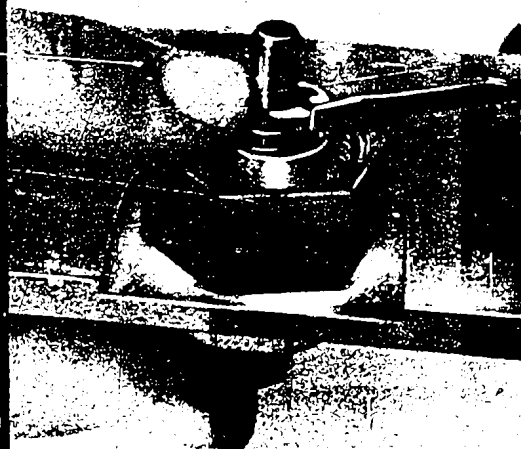
Insert the calibrated setting device into the "eye" of the sliding sleeve and bolt it in place.

Using drive plates of various thicknesses (74), set deviation to 0 ± 0.1 mm.

Remove the setting device KDEP 1061, sliding sleeve (72), drive disc(s) (74), needle-roller bearing (73), and the support disc (92).

Fit the governor parts in the housing:

Clamp the governor housing in a vise, using protective jaws if necessary.



14

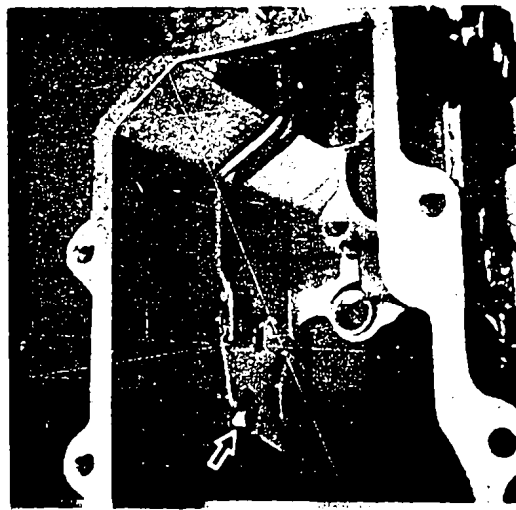
Guide the stud of the governor link (120), into the stop cover (52). Slide compression spring (132) and shims (141) (133), in that order, onto the governor-link stud.

Press the compression spring and shims down by hand. At the same time, hold the governor link from underneath. Fit the lock washer (134).

Fit the tube fitting (135) and the screw plug (136), using new seal rings. Tighten the fitting and the screw plug with a torque of $6 \dots 8$ Nm ($0.6 \dots 0.8$ kgf.m).

In the following working step, only the specified seal (51) is to be fitted.

Lay the seal on the governor housing, and fit the governor link together with the stop cover (52) into the governor housing.



15

Fit the guide pin into the tube fitting (135).

Fit the lock washer (134).

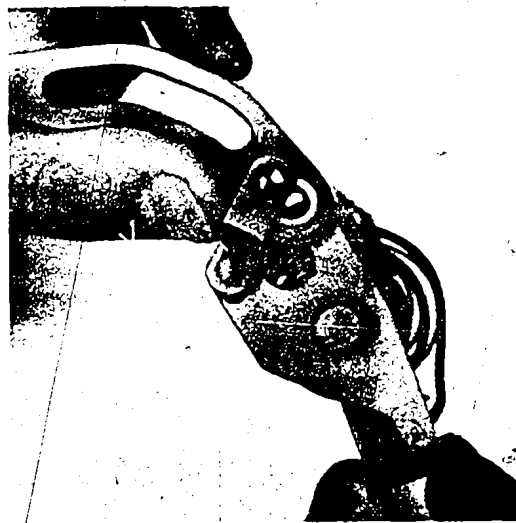
The screw plug (136) must be located in the recess of the governor-link template (arrow).

Fit the flat seal ring (138) and the cap nut (139).

Tighten the cap nut with a torque of $6 \dots 8$ Nm ($0.6 \dots 0.8$ kgf.m).

Screw-in the fillister-head screws (126) together with the spring lock washers (53).

Tighten the fillister-head screws with a torque of $4 \dots 5$ Nm ($0.4 \dots 0.5$ kgf.m).



16

Attach the fulcrum lever (6) to the swivel lever (2) and secure it with the bar.

Thoroughly degrease the screw plugs (7) (bearing screws for the swivel lever) and coat their threads with Loctite-CVV. Fit the swivel lever in the housing. Screw-in the screw plugs, and tighten with a torque of $20 \dots 25$ Nm ($2.0 \dots 2.5$ kgf.m).

Check the swivel lever for ease of movement.

Fit new oil seals (10) in the bearing holes of the control lever (8).

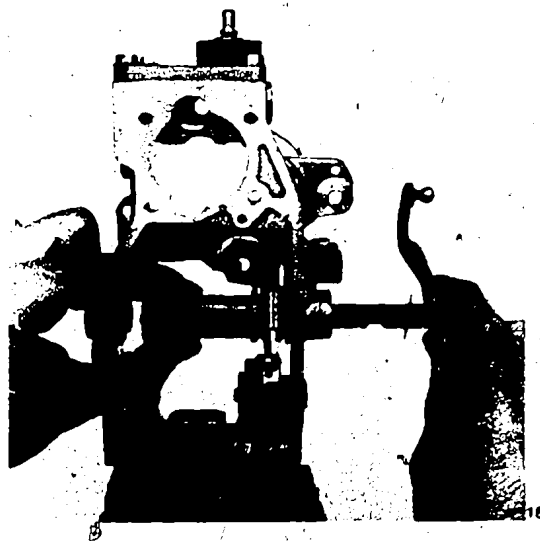


Slide a plain washer (9) onto the control lever (8).

During the following working step, pay particular attention to the correct positioning of the linkage lever (39).

The pin with the smaller diameter is located in the governor-link template (120).

The pin with the larger diameter fits in the fulcrum lever (6).



Fit spacer (24) and lock washer (25).

The control lever (8) must have no end play at all, it must though, be easy to rotate.

Correct by means of shims (23).

The driver (13) must be located in the pin of the swivel lever (2).

Secure the linkage lever (39) by means of the clamp screw (40) and the parts (41), (53) and (43).
The hexagon nut (43) must point upwards.



The following order of the working steps applies to control levers which are inserted from the left (seen looking at the governor from the injection-pump side).

Slide the control lever (8) into the left-hand bearing bore of the housing. Fit the linkage lever (39), the clamping ring (14), the driver (13), and the second clamping ring (14), in this order, onto the control lever. Now push the end of the control lever through the bearing bore in the opposite side of the housing.

A lock washer (25) must be inserted between both the linkage lever (39) and the clamping ring (14), as well as between the governor housing and the clamping ring (14) on the right-hand side of the governor.

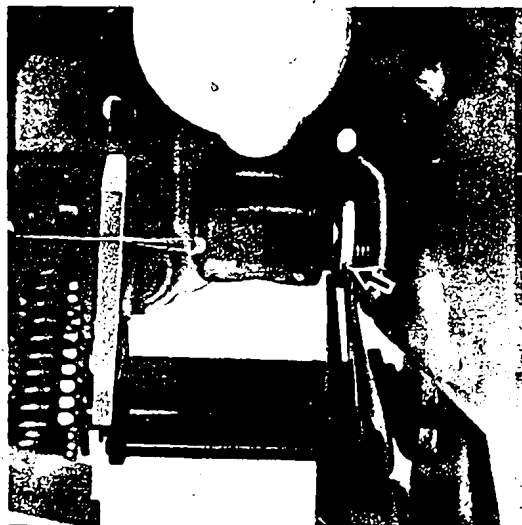


Fit the full-load stop (46) in the threaded bushing (44).

The sensing finger (part of the full-load stop) now contacts the curved track in the driver (13).

The tongue of the full-load stop must fit in the pin in the housing.

Hook the leaf spring (32) into the tensioning lever (26). The curved ends must point away from the pump.



20

Using grease, stick the shim (33) into the governor housing.

During the following working step, ensure that the tensioning lever (26) is located in the retaining bracket (15).

Fit the tensioning lever (26) in the housing. Slide in the bearing pin (34) together with the retainer (35).

Coat the screw plug (36) with Loctite CVV and screw it into place.

Push the tensioning lever (26) as far as it will go in the direction of the governor housing.

Fit the sliding sleeve (72), together with the support disc (92), needle-roller bearing (73), and previously selected drive plate (74), onto the ball head of the swivel lever (2).



21

Fit the governor to the injection pump:

Center the sliding sleeve (72) to the camshaft by inserting a user-fabricated guide pin (see Section 6) through the hole in the spring retainer (30).

Push the lower edge of the governor up against the pump.

Note:

Before suspending the fulcrum lever (6) in the control lever, the inner full-load stop (46) must be suspended from the stud of the control rod.

During the following working step, pay particular attention to ensuring that excessive sideways pressure is not applied to the control rod. Otherwise, the control rod will seize.

Suspend the fulcrum lever (6) in the control rod. Clip the holding ring into place on the fulcrum lever.



21

Slide the adjusting shaft (48) a slight distance into the housing. Hook the extension spring (49) into the groove in the adjusting shaft.

Now push the adjusting shaft (48) all the way in.

Push the tensioning lever (26) up against the retaining bracket (15), if necessary, lift up the sliding sleeve.

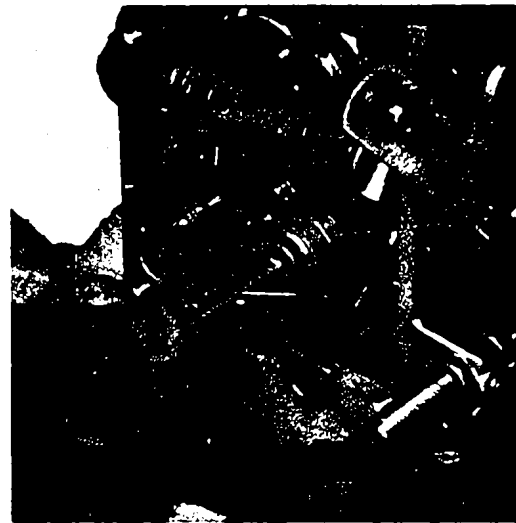
Hook the extension spring into the tensioning lever (26).

Temporarily screw the adjustment screws (28), the spring retainer (30), and the stop piece (70) into the tensioning lever (26).

Fit the hexagon bolt (19) and the full-load stop (81).

Secure the injection pump to the clamping support.

Using grease, stick the gasket (76) to the pump housing.



21

Now push the governor fully up against the injection-pump housing. Fit the fastening screws (75) and tighten them with a torque of 5 ... 7 Nm (0.5 ... 0.7 kgf.m). Screw-in the adjusting shaft (48) and tighten it with a torque of 15 ... 20 Nm (1.5 ... 2.0 kgf.m).

Fit the cover (80) together with its gasket (79).

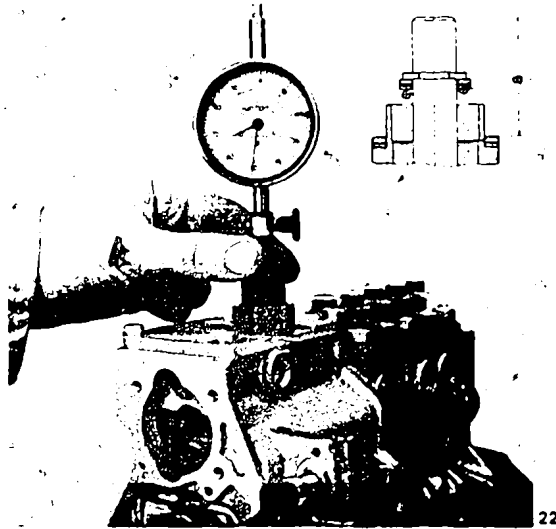
Screw the fastening screws (54) (55), together with retainer rings (53), into place and tighten with a torque of 4 ... 5 Nm (0.4 ... 0.5 kgf.m).

Measure the pin-projection dimension:

Clamp the dial indicator 1 687 233 012, together with shaft, into the measuring tool KDEP 1070.

Set up the measuring tool on a level surface (surface plate, test-bench bed).

Pre-tension the dial indicator to about 1 mm and set it to "0".



a = pin-projection dimension.

Insert the shims (148).

Set up the measuring tool, together with the dial indicator, on the shims (148).

Read off the pin-projection dimension on the dial indicator and compare the reading with the required figures given in the Test Specifications Sheet.

Correct by the use of shims (148).

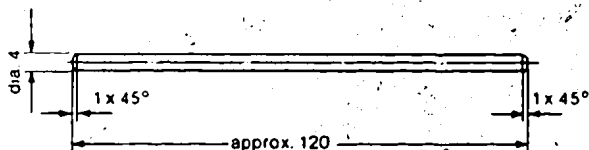
Remove the shims because the first stage of the testing takes place without the aneroid box.

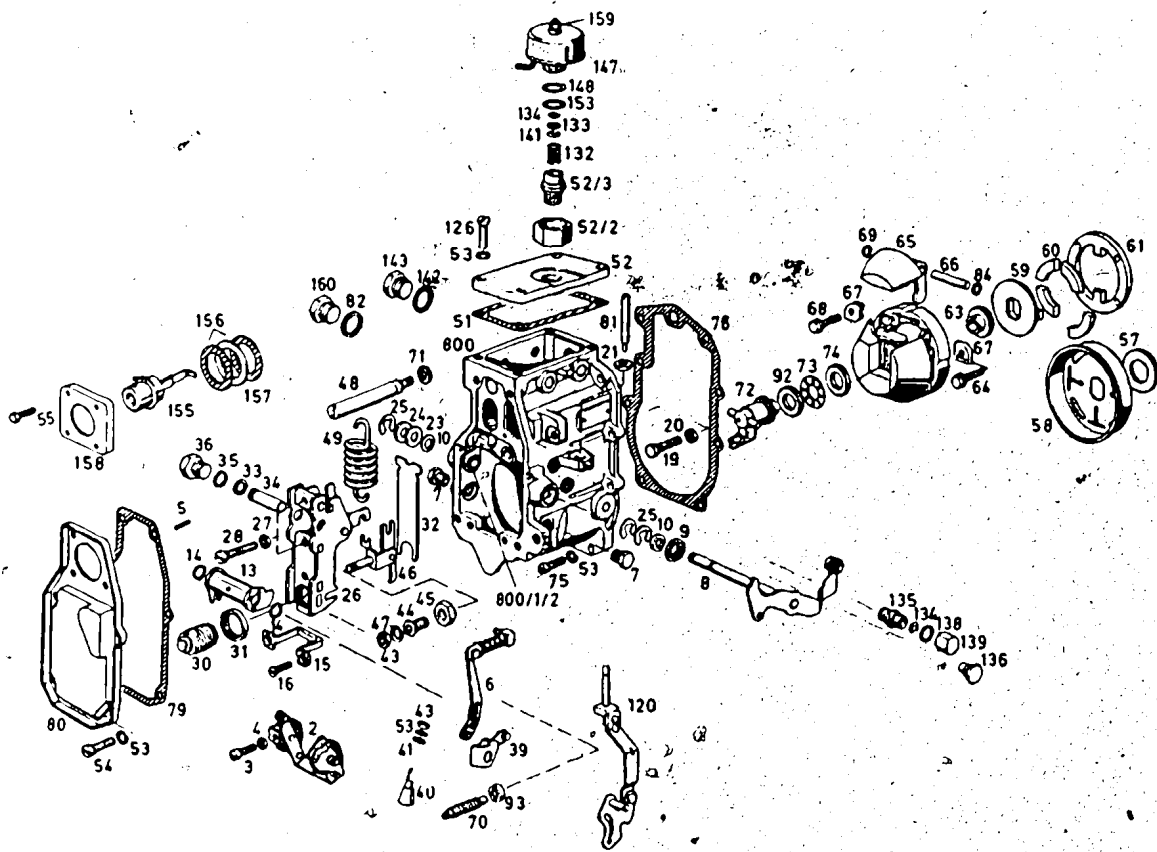
Test and adjust the governor in accordance with VDT-W-420/300 En, Suppl. 2

6. Tightening torques

Item No.	Designation	Nm	kgf.m
7	Screw plug	20 ... 25	2.0 ... 2.5
16	Flat-head screw	6 ... 8	0.6 ... 0.8
36	Screw plug	25 ... 30	2.5 ... 3.0
43	Hexagon nut for item 40	6 ... 7	0.6 ... 0.7
43	Hexagon nut	7 ... 9	0.7 ... 0.9
45	Hexagon nut	20 ... 23	2.0 ... 2.3
48	Adjusting shaft	15 ... 20	1.5 ... 2.0
50	Screw plug	8 ... 9	0.8 ... 0.9
54	Fillister-head screw	4 ... 5	0.4 ... 0.5
63	Lock nut	100 ... 110	10.0 ... 11.0
68	Hexagon screw	10 ... 12	1.0 ... 1.2
75	Fillister-head screw	5 ... 7	0.5 ... 0.7
135	Tube fitting	6 ... 8	0.6 ... 0.8
136	Screw plug	6 ... 8	0.6 ... 0.8
143	Screw plug	25 ... 30	2.5 ... 3.0

5. Auxiliary tool





After-sales Service Instructions

Repair

42

VDT-W-420/100 En
Suppl. 2
Ed. 1

Mechanical governors

0 420 081 .. -RW .. MW ..
with port-closing sensor system (FBG)

This publication has been redesigned with the forthcoming change-over to microfilm in mind. When a publication has been transferred to microfilm, the screen will be filled completely by a quarter of a printed-publication page. For this reason, it is unavoidable that illustrations are repeated in the case of longer texts in which reference is constantly being made to a particular illustration.

Until the change-over to microfilm we have slightly reduced the size of the print and of the illustrations.

Contents

Section

Coordinates

- | | |
|----------------------|-----|
| 1. Introduction..... | A 2 |
| 2. Repair..... | A 3 |

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Robert Bosch GmbH.

1. Introduction

The construction and operation of these governors is described in Motor Vehicle Service Information VDT-I-413/1 (4.83).

A2

Introduction

Mechanical governors with FBG

C14

2. Repair

These governors are dismantled and assembled in accordance with Repair Instructions VDT-W-420/100 - Ed. 1 - up to and including page 4 - (remove flyweight assembly - next to Fig. 9).

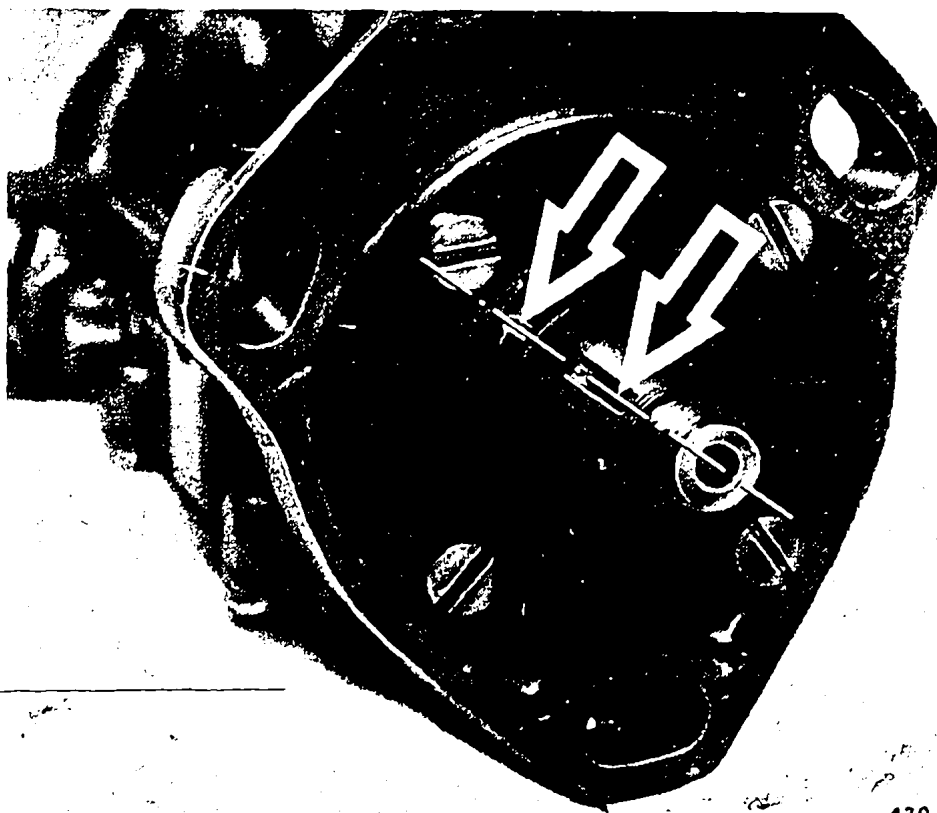
Note:

To loosen the fastening screws on the sliding flange, a slit must be sawn into the screw heads.

A3

Repair

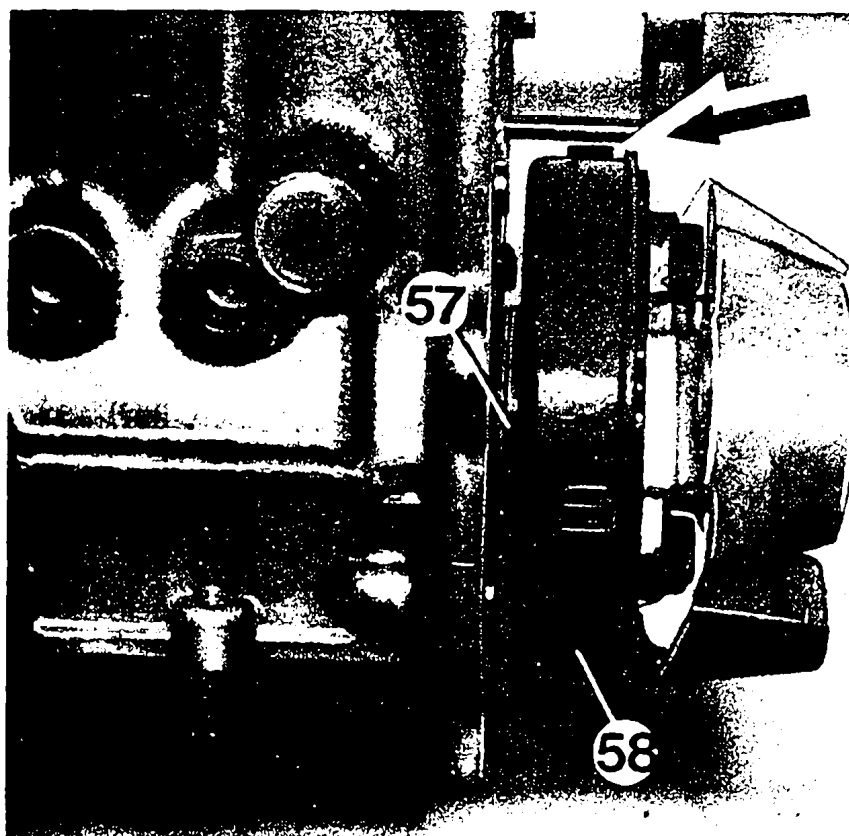
Mechanical governors with FBG



420/0030

2.1 Different operations for governors with FBG system

Turn the camshaft of the injection pump until the Woodruff key groove on the camshaft aligns with the line marking on the pump flange.



420/0031

Slip the assembled flyweight part onto the camshaft with supporting plate (bore dia. 25 mm, part of the injection pump), support disc (57) bore dia. 20 mm, capsule (58) with the angle mark toward the control rod.

A5

Repair

Mechanical governors with FBG

C17

Tighten the lock nut (Item 63) to the specified tightening torque (100...110 Nm) using pin wrench KDEP 1062.

For the following operations, see Repair Instructions VDT-W-420/100 - Ed. 1 - starting on page 5 "Measure the sliding sleeve...".

BOSCH

REPAIR INSTRUCTIONS

42

VDT-WJP 211/7 B
<VDT-W-420/100 B>
Ed. 1

Mechanical Governors

0 420 081 .. - RW.. MW..
0 420 093 .. - RWV.. MW..

Contents

Page	
1	1. Introduction
1	2. Special Tools
2	3. Disassembly
4	4. Checking the Parts
4	5. Assembly
10	6. Auxiliary Tools
10	7. Tightening Torques

1. Introduction

This instruction booklet describes the disassembly, repair, and assembly of BOSCH Mechanical Governor RW (V) .. MW ...

The construction and operation of these governors are described in Technical Instruction Publication VDT-BEP 102/1 ($\leq$ VDT-J-403/1 B $>$).

We recommend that you read the publication before carrying out repairs on a governor of the type specified using this instruction booklet.

Some special tools are required for the repair work described here and are listed in Section 2 below.

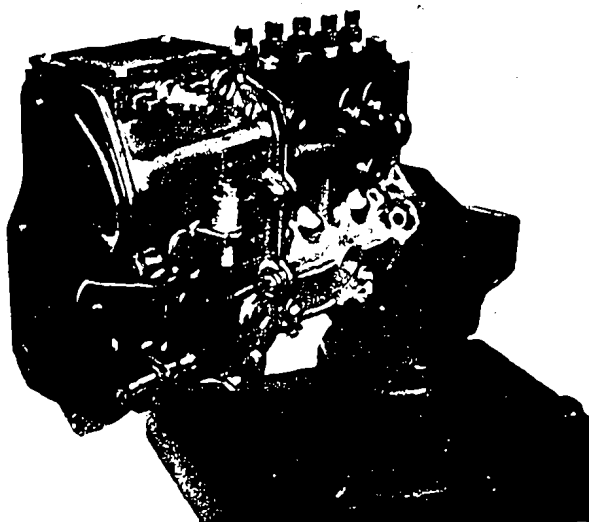
The numbers given in parentheses in the text refer to parts shown in the sectional views of the governor given on Page 8 (fold-out).

2. Special Tools

Tool	Type Designation and Part No.	Application
Mounting device	KDEP 2919 (EF 8498 C)	For mounting the fuel injection pump complete with governor
Mounting parts	KDEP 1067 —	For fuel injection pump with cradle mounting
Clamp	KDEP 2963 —	For fuel injection pump with flange mounting
Flange	EFEP 157/6 1 685 720 018	PES .. with 3-hole flange
Flange with ring	EFEP 157/4 1 685 720 017 EFEP 29/0/3 1 680 202 005	PES .. with 4-hole flange Pilot diameter 68 mm
Pin wrench	KDEP 1062 —	For lock nut (63)
Socket wrench	KDEP 1063 —	For stop piece (70) and for tightening lock nuts
Pin wrench	KDEP 1064 —	For spring retainer (30) and for tightening lock nuts
Setting device	KDEP 1061 —	For adjusting the sliding sleeve (72)
Dial indicator	EFAW 7 1 687 233 011	For use with the setting device, measurement range 10 mm, graduations 1/100 mm

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3. Disassembly

Fasten the fuel injection pump together with the governor to mounting device KDEP 2919 using the proper mounting parts (see Section 2, "Special Tools" above).

Remove the two covers (52 and 80), together with their gaskets. Collect the oil that flows out.

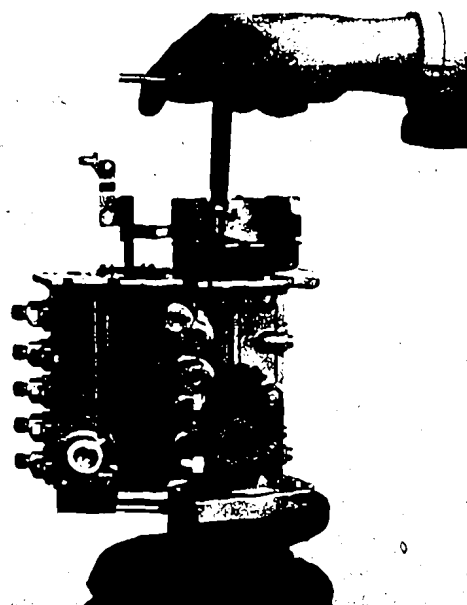
Remove the fixing screws (75) holding the governor in place.



Pull the governor housing back somewhat. Detach the fulcrum lever (6) from the control rod — to do this, remove the holding spring with pointed pliers. Remove the governor.

Remove the flyweight assembly — to do this, unscrew the lock nut (63) using pin wrench KDEP 1062 and remove the flyweight carrier (64) together with the flyweights (65) and the casing (58).

Remove the support disc (57) and the support piece (part of the fuel injection pump) from the camshaft.



Dismantle the flyweight assembly:

Clamp the fuel injection pump vertically in a vise. Set the flyweight assembly on the camshaft. Unscrew the 4 hexagon bolts (68) and the clamping jaws (67). Lift off the flyweights (65) together with the pivot pin (66) and the shims (84, 69).

Remove the lock nut (63), the flyweight carrier (64), and the casing (58) together with the drive plate (61) from the camshaft.

Clamp the governor in a vise using protective jaws.

Release the tension on the extension spring (49) by unscrewing the adjustment screw (28).

Unscrew the tapered screw plug (50) from the adjusting shaft (48).

Remove the adjusting shaft (48) from the housing. Detach the extension spring from the tensioning lever (26).

Release the tension on the leaf spring (32) in the tensioning lever (26) — to do this unscrew the adjustment screws (29) and the stop (70) using the pin wrench and socket wrench KDEP 1063.

Remove the spring retainer (30) from Governor RW (or the driver screw (30) from Governor RWV, as the case may be) using pin wrench KDEP 1064 or a 1/2" hexagon socket screw key.

Remove the sliding sleeve (72), the needle roller bearing (73) and the drive plate (74).

Remove the tensioning lever (26) together with the leaf spring (32) — to do this, remove the screw plug (36), pull out the bearing bolt (34) together with the retainer (35) and remove the tensioning lever together with the shim (33).

Slide the leaf spring (32) out. Remove the full-load stop (46) — to do this first remove the hexagon nut (43) together with the spring washer (47).

Remove the control lever (8):

Release the hexagon nut (20) and unscrew the adjustment screw (81) (idle stop).

Remove the clamping bolt (40) at the fulcrum lever (6) — to do this, remove the hexagon nut (43) together with the lock washer (53) and the plain washer (41).

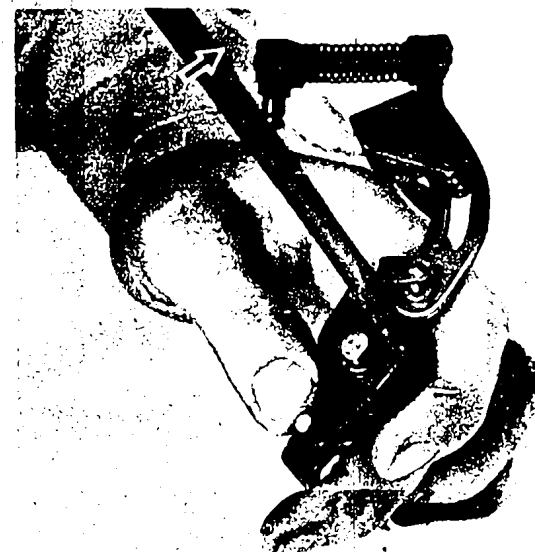
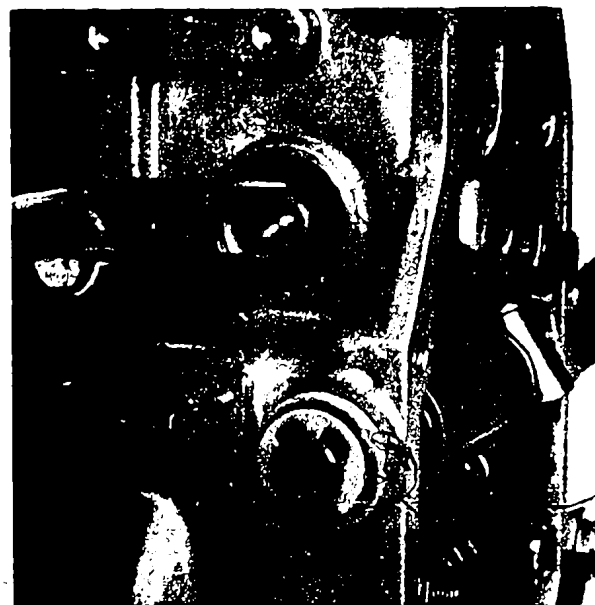
Remove the clamping screw by tapping it lightly with a hammer.

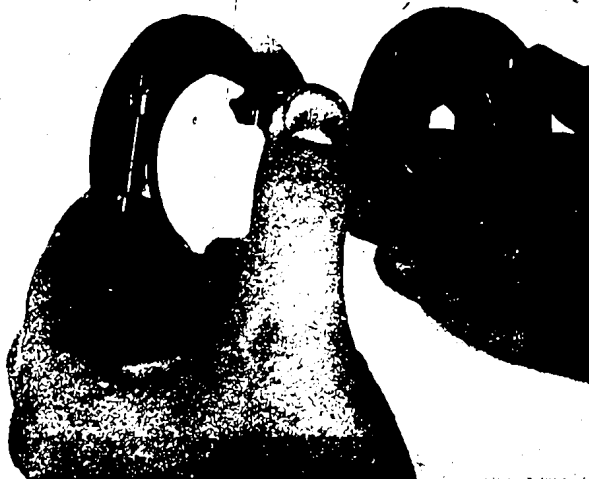
Remove the lock washers (25), the spacer (24), and the plain washers (23).

When pulling the control lever (8) out, be sure that the clamping rings (14) and the washer (9) are not damaged or lost.

Remove the driver (13).

Remove the swivel lever (2) together with the fulcrum lever (6) — to do this, unscrew both of the screw plugs (7). Turn the bar at the swivel lever and pull the fulcrum lever off.





4. Checking the Parts

Clean all of the individual parts.

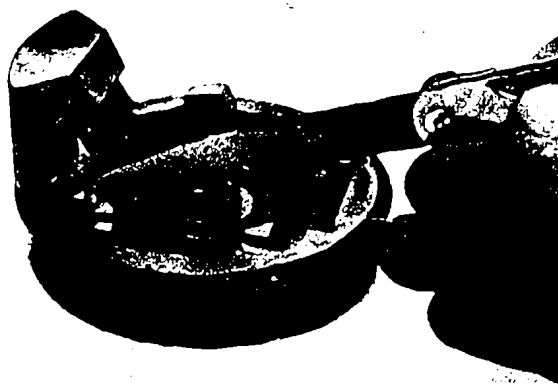
Replace any parts that have become worn or damaged. As a basic principle, after any repair work reassemble using new gaskets, sealing rings (10), and rubber buffers (60).

5. Assembly

Before assembly, coat all moving parts with test oil. All screws and bolts must be tightened with the torques specified in Section 7.

7

Reassemble the flyweight assembly:
Lay the drive plate (61) on the driver (59) and press in the rubber buffer (60) (coated with oil) by hand.
Install this sub-assembly in the flyweight carrier (64).



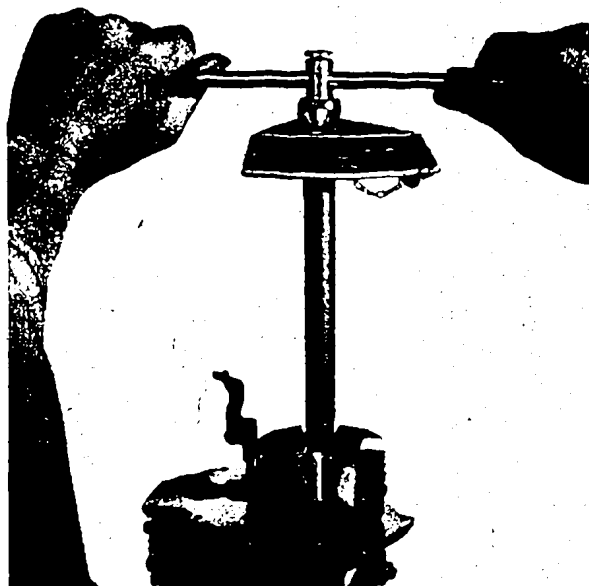
Place the lock nut (63) on the driver.

Place the flyweights (65) in the flyweight carrier (64), together with pivot pin (66) and shims (84) on both sides.

Measure the axial play of the flyweights with a feeler gauge and set this play to 0.1 – 0.2 mm with shims (69). The thickness of the shims should be about the same on both sides.

8

Fasten the flyweights in place with the clamping jaws (67) and with new hexagon bolts (68).



In order to tighten the hexagon bolts (68), place the pre-assembled flyweight assembly on the camshaft holding the fuel injection pump vertically for this purpose.

Remove the flyweight assembly.

Mount the flyweight assembly on the camshaft — for this purpose slide the support disc (77) (hole diameter 25) (part of the fuel injection pump), the support piece (57) (hole diameter 20), the casing (58), and the pre-assembled flyweight assembly onto the camshaft.

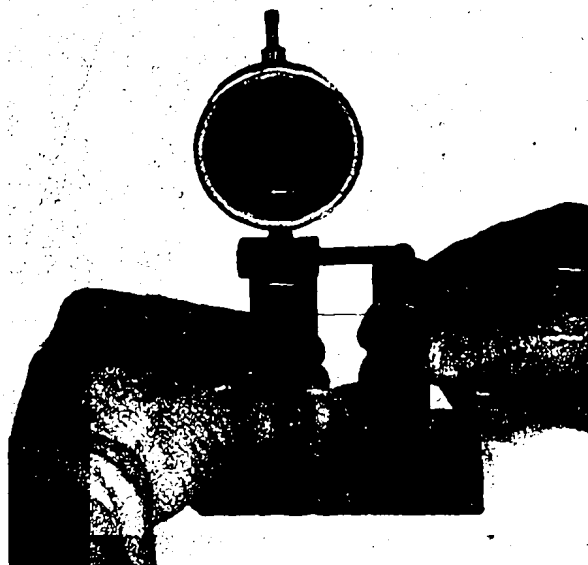
9

Tighten the lock nut (63) using pin wrench KDEP 1062 with the torque specified.

Measure sliding sleeve travel:
Adjust setting device KDEP 1061 with a calibrated measure.

Pre-tension the dial indicator (which is in graduations of 1/100 mm) to a reading of 5 mm and set it to "0".

10

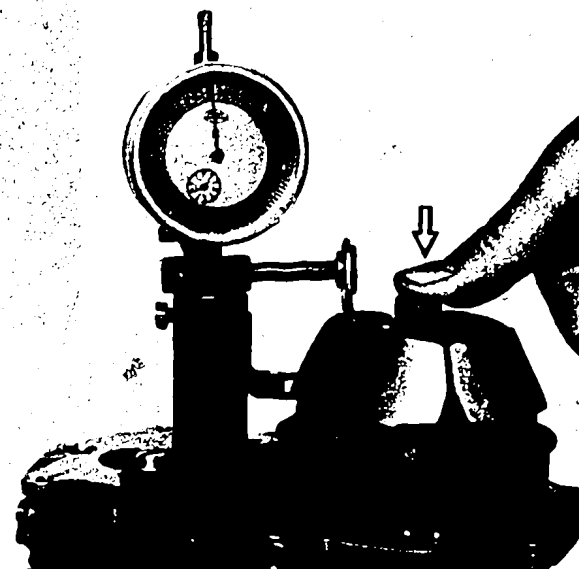


Glue, with grease, the needle roller bearing (73) and the drive plate (74) to the sliding sleeve (72).
Place the sliding sleeve on the camshaft and press it onto the shaft.

Insert the calibrated setting device into the eye of the sliding sleeve and bolt it in place.

Set any deviation to "0" ± 0.1 mm by installing drive plates of the thicknesses required.

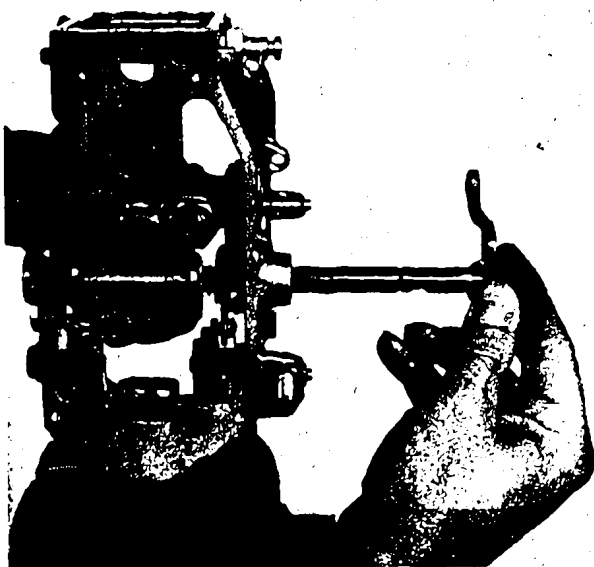
11



12



Install the governor parts in the housing:
Attach the fulcrum lever (6) to the swivel lever (2) and fasten it with the bar.



Clamp the pump housing in a vise, using protective jaws. Install the swivel lever in the housing.

Coat the threads of the screw plugs (7) (bearing bolts) with Loctite-CVV, screw these plugs into place and tighten them. Check the swivel lever for easy movement.

Install the driver (13) and the control lever (8):

Slide the washer (9) (0.5 mm thick) onto the control lever shaft.

Then slide the control lever shaft through the right-hand bearing hole in the housing and through the fulcrum lever (6), the clamping ring (14), the driver (13), the other clamping ring (14), and through the left-hand bearing hole. (This applies to control levers which are pushed in from the left. Seen looking onto the governor drive end).

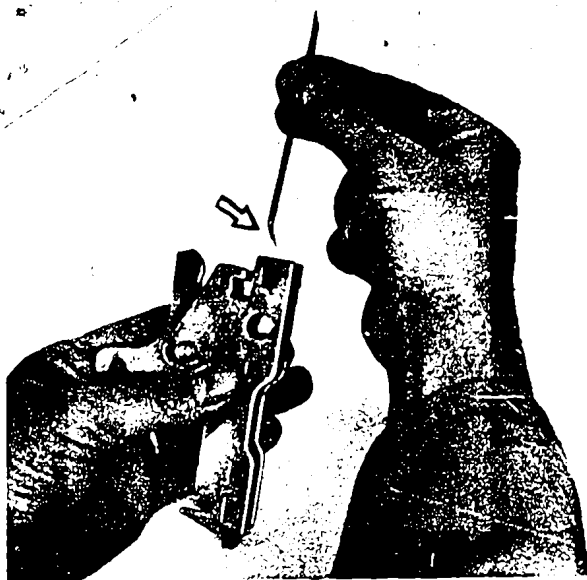
13

In the RWV governor, the fulcrum lever (6) must also be suspended in the curved track in the guide sleeve attached to the housing. Then a retainer (25) is placed between the fulcrum lever (6) and the clamping ring (14) and another retainer is placed between the governor housing and the clamping ring (14).

Mount the spacer (24) and the retainer (25). Adjust the control lever (8) with washers (23) so that it has no play and check that it moves freely. Fasten the fulcrum lever (6) with the clamping screw (40) and parts (41), (53), and (43).

The hexagon nut must point upward here.

Install the full-load stop (46 full-load limit) in the threaded bushing (44) so that the follower lever lies against the curved track in the driver (13). Insert the bar into the bolt.



14 Suspend the leaf spring (32) in the tensioning lever (26).

Glue the shim (33) into the housing with grease. Install the tensioning lever in the housing and slide the bearing bolt (34) with the retainer (35) in. Be sure that the tensioning lever is inserted in the retaining bracket (15).

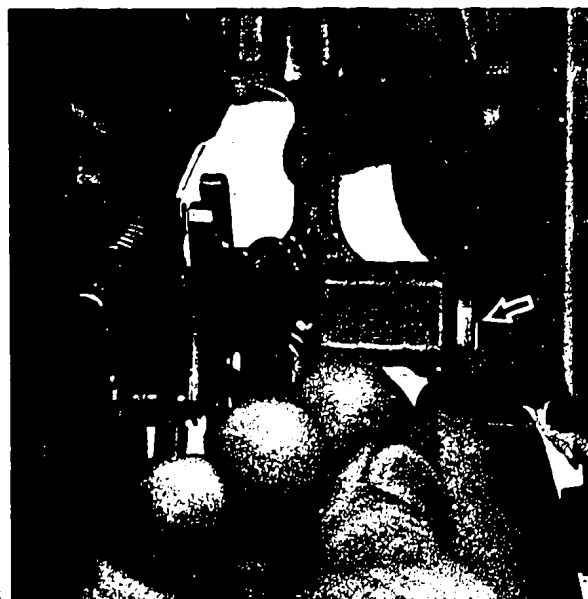
Coat the screw plug (36) with Loctite-CVV and screw it into place.

Place the sliding sleeve (72) with the needle roller bearing (73) and the previously-selected drive plate (74) on the spherical end of the swivel lever (2).

Suspend the extension spring (49) in the spring retainer in the tensioning lever (26), and slide the adjusting shaft (48) through the eye of the extension spring until it reaches the housing stop. Screw the tapered screw plug (50) into the adjusting shaft.

Screw the adjustment screws (28), (29), the spring retainer (30), and the stop piece (70) temporarily into the tensioning lever (26).

15

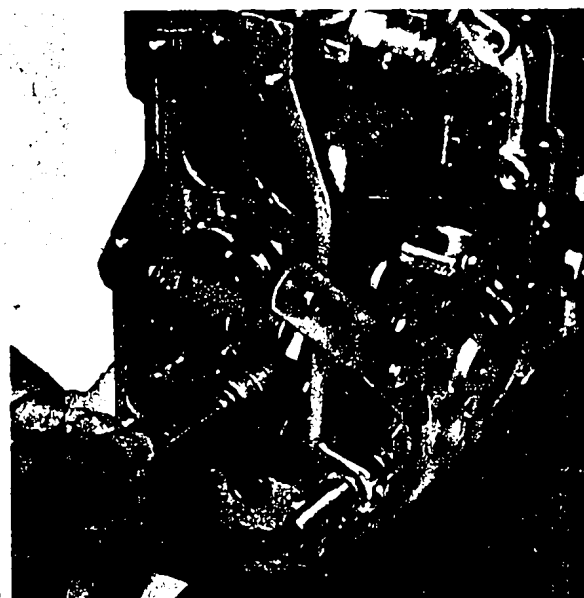


Fasten the fuel injection pump on the mounting device.

Glue the gasket (76) to the housing of the fuel injection pump with grease.

Mount the governor on the fuel injection pump – to do this, center the sliding sleeve (72) by inserting a home-made guide pin (see Section 6, Fig. 18) through the hole in the spring retainer (30) to the camshaft.

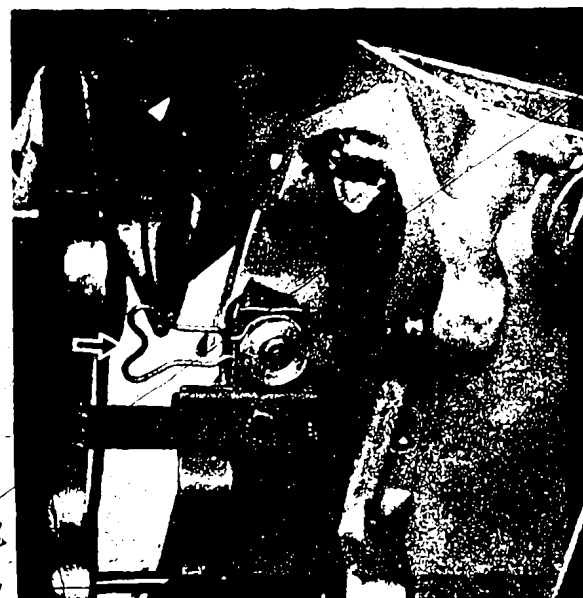
16

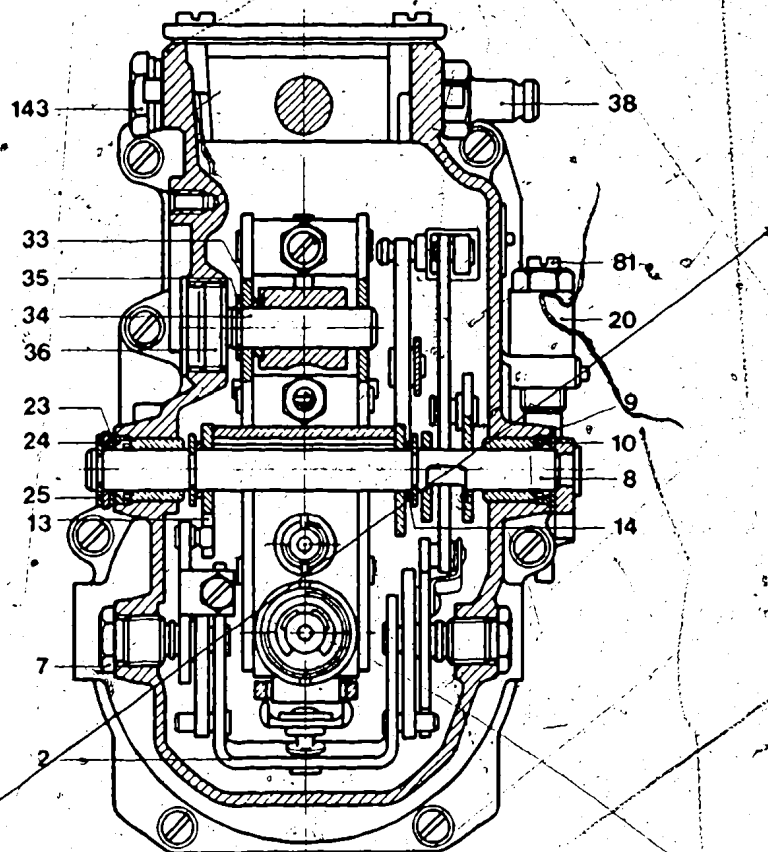
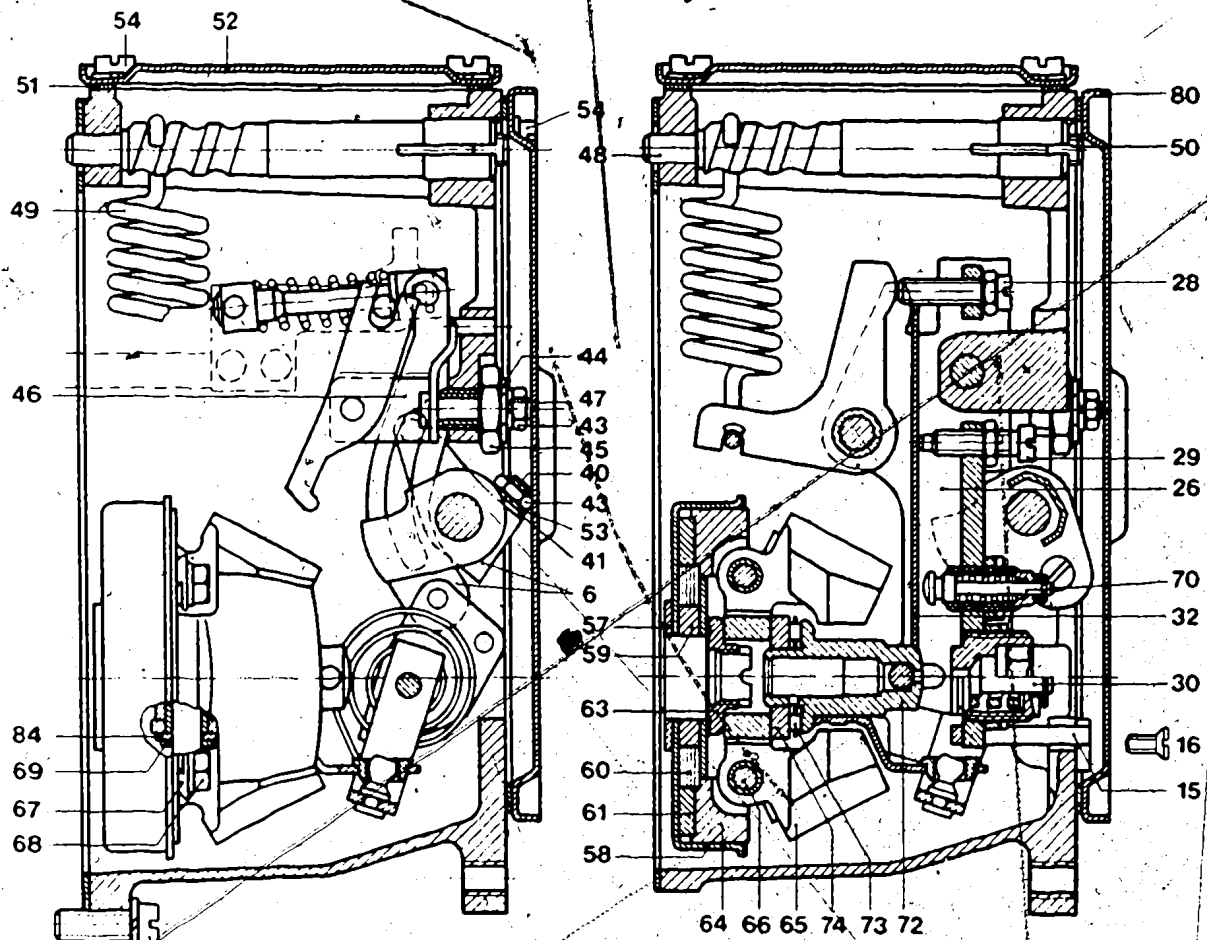


Suspend the fulcrum lever (6) in the control rod and lock the holding spring into the fulcrum lever. Install the full-load stop (46) follower lever and bolt the governor to the injection pump. Screw the adjustment screw (81) (idle stop) with the hexagon nut (20) into the governor housing. Mount the covers (52 and 80) together with gaskets.

Check and adjust the governor according to Test Instructions VDT-WPP 211/...

17





6. Auxiliary Tools

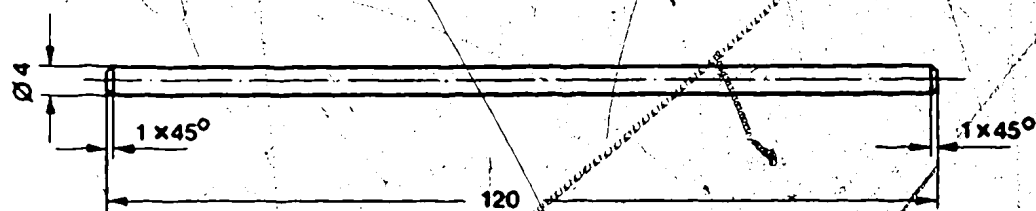


Fig. 18

7. Tightening Torques

Pos. No.	Designation	Nm	kgf.m
7	Screw plug	20- 25	2 - 2.5
16	Flat head screw	6- 8	0.6- 0.8
36	Screw plug	25- 30	2.5- 3.0
38	Connector bolt	25- 30	2.5- 3.0
43	Hexagon nut for Pos. No. 40	6- 7	0.6- 0.7
43	Hexagon nut	7- 9	0.7- 0.9
45	Hexagon nut	20- 23	2.0- 2.3
50	Screw plug	8- 9	0.8- 0.9
54	Fillister head screw	4- 5	0.4- 0.5
63	Lock nut	100-110	10 -11
68	Hexagon screw	10- 12	1 - 1.2
75	Fillister head screw	5- 7	0.5- 0.7
143	Screw plug	25- 30	2.5- 3.0